# THERMOCHIMICA ACTA, VOLUME 115 (1987)

## AUTHOR INDEX


Akanni, M.S. 351
Al-Rawi, J. 181
Al-Sammerrai, D. 181
Al-Sammerrai, F. 181
Allan, J.R. 21
Amira, M.F. 1
Antipine, I. 153
Arora, N.K. 385
Atake, T. 207
Azzaro, M. 67

Bertóti, I. 269
Bertrand, G. 317
Beyer, R.P. 11
Blumenthal, G. 269
Boddington, T. 345
Bowley, H.J. 21
Bukovec, P. 249
Burrows, H.D. 351

Chagas, A.P. 31
Chanaa, M.B. 317
Chandra, N. 375
Chauhan, G.S. 381
Colacio-Rodriguez, E. 45
Coten, M. 153

Dangwal, D.N. 381
Dash, U.N. 97, 111
Daugherty, K.E. 57
Davy, L. 153
De Robertis, A. 241
Del Grosso, A. 289
Demšar, A. 249
Dung, N.T. 91
Dunstan, P.O. 389

El-Shazly, Sh.A. 1
Elegant, L. 67

Faraglia, G. 229
Fujita, D. 281

Gaitán, M. 175
Gal, J.-F. 67
Gerrard, D.L. 21
Gubrynowicz, L. 137

Hauthal, T. 269
Huang, J.-M. 57

Islam, M.R. 335
Ito, K. 63

Jameel, I. 37
Jasim, F. 37
Jerez, A. 175
Jirů, P. 91

Kanno, T. 63
Khalil, M.M. 1
Kokkonen, P. 255
Křivánek, M. 91

Lajunen, L.H.J. 255
Lallemant, M. 317
Laye, P.G. 345

Maria, P.-C. 67
Maruyama, T. 199, 207
May, J.C. 289
Mink, G. 269
Mishra, M.K. 97
Moreno-Carretero, M.N. 45
Moreno-Vida, M.I. 45
Morisson, A. 167
Mukhedkar, A.J. 215
Mukhedkar, V.A. 215

Nagata, I. 359
Nakamura, S. 359
Nikumbh, A.K. 215
Nowicka, B. 129

Oden, L.L. 11

Palmu, L. 255
Pap, I.S. 269
Pendlowski, M.J. 21
Petot, C. 167
Pico, C. 175
Prabhakar, L.D. 297
Prakash, K.M.M.S. 297

Quadri, S.K. 335

Rahman, M.M. 215
Ramos, E. 175
Randzio, S.L. 83
Reddy, D.V. 297
Rigano, C. 241
Ruiz-Sánchez, J. 45

Sabbah, R. 153
Saito, Y. 199, 207
Salas-Peregrín, J.M. 45
Samanta, P.K. 111
Sammartano, S. 241
Sandle, N.K. 189
Sawhney, S.S. 375, 381, 385
Simoni, J. de A. 31
Simonot-Grange, M.H. 317
Sindellari, L. 229
Sitran, S. 229
Strömich, T. 137
Székely, T. 269

Takeda, N. 281
Tanaka, S. 303
Tanaka, Y. 281
Taniewska-Osińska, S. 119, 1

Varma, I.K. 189
Veiga, M.L. 175
Venkataraman, A. 215
Verma, O.P.S. 189
Vicentini, G. 389

Wheeler, R. 289
Woźnicka, J. 119

Yamanaka, A. 199, 207

Zerbinati, O. 241
Zinner, L.B. 389

THERMOCHIMICA ACTA, VOLUME 115 (1987)

# SUBJECT INDEX


$2Al_4C_3 \cdot SiC$,
heat capacity of $2Al_4C_3 \cdot SiC$ from 447 to 1447 K and enthalpy of peritectic decomposition of $Al_4C_3$, $2Al_4C_3 \cdot SiC$, and $Al_4C_3 \cdot SiC$ (Oden, Beyer) 11

Aliphatic alcohols,
dissolution enthalpy of NaI in mixtures of ethylene glycol + aliphatic alcohols at 313.15 K (Taniewska-Osińska, Woźnicka) 119

Alkali carbonates,
catalytic effect of alkali carbonates on the calcination of calcium carbonate (Huang, Daugherty) 57

Alkylxanthine derivatives,
thermal studies on purine complexes. XIII. Bromocomplexes of some alkylxanthine derivatives (Moreno-Vida et al.) 45

Amines,
spectroscopic and thermal studies on platinum(II) iodide complexes with primary amines (Faraglia et al.) 229

$BaBiO_{3-x}$,
thermoanalytical investigation of the phase relation in $BaBiO_{3-x}$ (Saito et al.) 199

Babylonian building asphalt,
the use of thermogravimetry and NMR spectroscopy in the attempted identification of the source of Babylonian building asphalt (Al-Sammerrai et al.) 181

BaO,
derivatographic investigations of the systems $BaO–GeO_2$ and $BaO–Nb_2O_5$ (Jasim, Jameel) 37

$BaPbO_3$,
preparation of $BaPbO_3$ from coprecipitated barium–lead oxalate (Yamanaka et al.) 207

Barium,
preparation of $BaPbO_3$ from coprecipitated barium–lead oxalate (Yamanaka et al.) 207

Binary liquid mixtures,
ultrasonic velocity and viscosity of binary liquid mixtures (Islam, Quadri) 335

$Ca^{2+}$,
ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,°C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis (De Robertis et al.) 241

Calcium carbonate,
catalytic effect of alkali carbonates on the calcination of calcium carbonate (Huang, Daugherty) 57

$CeBi_2$,
determination of the free energy of formation of $LaBi_2$ and $CeBi_2$ (Morisson, Petot) 167

Chromium nitrate nonahydrate,
study on the thermal decomposition of chromium(III) nitrate nonahydrate (CNN) (Gubrynowicz, Strömich) 137

$Cl^-$,
ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,°C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis (De Robertis et al.) 241

Coal-derived liquid,
high-pressure, high-temperature thermodynamic properties of a coal-derived liquid (Randzio) 83

Cobalt,
the thermal, spectral and magnetic studies of chloro and bromo compounds of cobalt(II), nickel(II) and copper(II) with melamine (Allan et al.) 21

Copper,
the thermal, spectral and magnetic studies of chloro and bromo compounds of cobalt(II), nickel(II) and copper(II) with melamine (Allan et al.) 21

Cytidine,
kinetic study on the thermal decomposition of cytidine and uridine (Tanaka et al.) 281

Dicarboxylic acids,
thermodynamics of electrolytic dissociation. First and second dissociation constants of some dicarboxylic acids in 10% (v/v) acetone (Amira et al.) 1
thermodynamics of dissociation of dicarboxylic acids in water + dioxane mixtures (Dash, Mishra) 97

Divalent metal carboxylates,
surface tensions of some molten divalent metal carboxylates (Akanni, Burrows) 351

Electrolytic dissociation,
thermodynamics of electrolytic dissociation. First and second dissociation constants of some dicarboxylic acids in 10% (v/v) acetone (Amira et al.) 1

Enthalpies of solution,
a microcalorimetric method for the measure-

ments of enthalpies of solution of gases in liquids (Maria et al.) 67
Ethylene glycol,
dissolution enthalpy of NaI in mixtures of ethylene glycol + aliphatic alcohols at 313.15 K (Taniewska-Osińska, Woźnicka) 119

$FeC_4H_2O_4 \cdot \frac{1}{2}H_2O$,
synthesis of $\gamma$-$Fe_2O_3$ by thermal decomposition of $FeC_4H_2O_4 \cdot \frac{1}{2}H_2O$. Part II (Venkataraman et al.) 215
$\gamma$-$Fe_2O_3$,
synthesis of $\gamma$-$Fe_2O_3$ by thermal decomposition of $FeC_4H_2O_4 \cdot \frac{1}{2}H_2O$. Part II (Venkataraman et al.) 215

$GeO_2$,
derivatographic investigations of the systems $BaO-GeO_2$ and $BaO-Nb_2O_5$ (Jasim, Jameel) 37
Gibbsite,
chlorination reactions of gibbsite and its thermal decomposition products with phosgene (Pap et al.) 269

Hexachloropropene,
thermal studies of uranium(V) chloride–trichloroacrylyl chloride and uranium(VI) chloride–hexachloropropene (Ito, Kanno) 63

Isothermal labyrinth flow calorimeter,
an isothermal labyrinth flow calorimeter with thermistors (Simoni, Chagas) 31

$K^+$,
ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,^\circ C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis (De Robertis et al.) 241

La(III),
pyrolysis and kinetics of non-isothermal decomposition of La(III)– and Th(IV)–phenoxymethyl penicillin complexes (Sawhney, et al.) 381
equilibrium analysis of La(III)– and Pr(III)–3-methyl-5-hydroxy-1,4-naphthalenedione systems (Sawhney, Arora) 385
$LaBi_2$,
determination of the free energy of formation of $LaBi_2$ and $CeBi_2$ (Morisson, Petot) 167
Lanthanoid trifluoromethanesulfonate,
thermogravimetric investigation of 4-picoline-*N*-oxide (4-picNO) lanthanoid trifluoromethanesulfonate complexes (Vicentini et al.) 389
Lead oxalate,
preparation of $BaPbO_3$ from coprecipitated barium–lead oxalate (Yamanaka et al.) 207
Linear theory,
linear theory applied to a calorimeter during quasi-isothermal operation (Tanaka) 303

Melamine,
the thermal, spectral and magnetic studies of chloro and bromo compounds of cobalt(II), nickel(II) and copper(II) with melamine (Allan et al.) 21
Metal salicylates,
solid state decomposition studies on metal salicylates. Kinetics of isothermal dehydration of some 5-substituted metal salicylato complexes (Kokkonen et al.) 255
4-Methoxybenzaldehyde-4-phenyl-3-thiosemicarbazone,
thermal behaviour of transition metal complexes of 4-methoxybenzaldehyde-4-phenyl-3-thiosemicarbazone (Prakash et al.) 297
3-Methyl-5-hydroxy-1,4-nanphthalenedione,
equilibrium analysis of La(III)– and Pr(III)–3-methyl-5-hydroxy-1,4-naphthalenedione systems (Sawhney, Arora) 385
$Mg^{2+}$,
ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,^\circ C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis (De Robertis et al.) 241

$Na^+$,
ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,^\circ C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis (De Robertis et al.) 241
NaI,
dissolution enthalpy of NaI in mixtures of ethylene glycol + aliphatic alcohols at 313.15 K (Taniewska-Osińska, Woźnicka) 119
$Nb_2O_5$,
derivatographic investigations of the systems $BaO-GeO_2$ and $BaO-Nb_2O_5$ (Jasim, Jameel) 37
Nickel,
the thermal, spectral and magnetic studies of chloro and bromo compounds of cobalt(II), nickel(II) and copper(II) with melamine (Allan et al.) 21
Nonisothermal decomposition reactions
a method for the kinetic analysis of nonisothermal decomposition reactions of solids (Jerez et al.) 175

Phenoxymethyl penicillin,
pyrolysis and kinetics of non-isothermal de-

composition of La(III)– and Th(IV)–phenoxymethyl penicillin complexes (Sawhney et al.) 381
Phosgene,
chlorination reactions of gibbsite and its thermal decomposition products with phosgene (Pap et al.) 269
4-Picoline-*N*-oxide,
thermogravimetric investigation of 4-picoline-*N*-oxide (4-picNO) lanthanoid trifluoromethanesulfonate complexes (Vicentini et al.) 389
Plant auxins,
affinity of plant auxins IAA, IBA and NAA to metals (Sawhney, Chandra) 375
Platinum iodide complexes,
spectroscopic and thermal studies on platinum(II) iodide complexes with primary amines (Faraglia et al.) 229
Polysaccharides,
TG/MS interface: applications to the determination of moisture in polysaccharides and freeze-dried biological products (May et al.) 289
Pr(III),
equilibrium analysis of La(III)– and Pr(III)–3-methyl-5-hydroxy-1,4-naphthalenedione systems (Sawhney, Arora) 385
Purine complexes,
thermal studies on purine complexes. XIII. Bromocomplexes of some alkylxanthine derivatives (Moreno-Vida et al.) 45

Silver salt electrodes,
standard thermodynamics of transfer. IV. The silver and silver salt electrodes in acetic acid + water mixtures at 25 °C (Dash, Samanta) 111
Starch-g-acrylonitrile copolymers,
thermal characterization of starch-g-acrylonitrile copolymers (Sandle et al.) 189
Sublimation enthalpy,
some comments on the calorimetric measurement of the enthalpy of sublimation or vaporization of a compound (Sabbah et al.) 153

Tetrahydrofuran,
enthalpy of transfer of ions from water to water–tetrahydrofuran mixtures (Taniewska-Osińska, Nowicka) 129
Tetramethylammonium di-μ-fluorobis[aquadifluoro-oxovanadate(IV)], thermal decomposition of tetramethylammonium di-μ-fluorobis [aquadifluoro-oxovanadate-(IV)] (Demšar, Bukovec) 249
Th(IV),
pyrolysis and kinetics of non-isothermal decomposition of La(III)– and Th(IV)–phenoxymethyl penicillin complexes (Sawhney et al.) 381
Thermal conductivity,
the measurement of thermal conductivity by differential scanning calorimetry (Boddington, Laye) 345
Trichloroacrylyl chloride,
thermal studies of uranium(V) chloride–trichloroacrylyl chloride and uranium(VI) chloride–hexachloropropene (Ito, Kanno) 63

Uranium chloride,
thermal studies of uranium(V) chloride–trichloroacrylyl chloride and uranium(VI) chloride–hexachloropropene (Ito, Kanno) 63
Uridine,
kinetic study on the thermal decomposition of cytidine and uridine (Tanaka et al.) 281

Vapor–liquid equilibrium,
prediction of vapor–liquid equilibrium from ternary liquid–liquid equilibrium data by means of local composition equations (Nagata, Nakamura) 359
Vaporization enthalpy,
some comments on the calorimetric measurement of the enthalpy of sublimation or vaporization of a compound (Sabbah et al.) 153

Water,
enthalpy of transfer of ions from water to water–tetrahydrofuran mixtures (Taniewska-Osińska, Nowicka) 129

Zeolites,
acidity of dealuminated Y-type zeolites determined by adsorption microcalorimetry (Křivánek et al.) 91
some thermodynamic and kinetic aspects of the dehydration of 13X zeolite under a microwave field (Chanaa et al.) 137

Vol. 115 THERMOCHIMICA ACTA May 15th, 1987

CONTENTS

*(Abstracted/Indexed in: Curr. Contents: Phys., Chem. Earth Sci.; Eng., Technol. Appl. Sci., Chem. Abstr.)*

Thermodynamics of electrolytic dissociation. First and second dissociation constants of some dicarboxylic acids in 10% (v/v) acetone
M.F. Amira, Sh.A. El-Shazly and M.M. Khalil (Alexandria, Egypt) ..... 1
Heat capacity of $2Al_4C_3 \cdot SiC$ from 447 to 1447 K and enthalpy of peritectic decomposition of $Al_4C_3$, $2Al_4C_3 \cdot SiC$, and $Al_4C_3 \cdot SiC$
L.L. Oden and R.P. Beyer (Albany, OR, U.S.A.) ..... 11
The thermal, spectral and magnetic studies of chloro and bromo compounds of cobalt(II), nickel(II) and copper(II) with melamine
J.R. Allan, M.J. Pendlowski (Edinburgh, Gt. Britain), D.L. Gerrard and H.J. Bowley (Sunbury, Gt. Britain) ..... 21
An isothermal labyrinth flow calorimeter with thermistors
J. de A. Simoni and A.P. Chagas (Campinas, Brazil) ..... 31
Derivatographic investigations of the systems $BaO–GeO_2$ and $BaO–Nb_2O_5$
F. Jasim and I. Jameel (Baghdad, Iraq) ..... 37
Thermal studies on purine complexes. XIII. Bromocomplexes of some alkylxanthine derivatives
M.I. Moreno-Vida, E. Colacio-Rodríguez, M.N. Moreno-Carretero, J. Ruiz-Sánchez and J.M. Salas-Peregrín (Granada, Spain) ..... 45
Catalytic effect of alkali carbonates on the calcination of calcium carbonate J.-M. Huang and K.E. Daugherty (Denton, TX, U.S.A.) ..... 57
Thermal studies of uranium(V) chloride–trichloroacrylyl chloride and uranium(VI) chloride–hexachloropropene
K. Ito and T. Kanno (Miyagiken, Japan) ..... 63
A microcalorimetric method for the measurement of enthalpies of solution of gases in liquids
P.-C. Maria, J.-F. Gal, L. Elegant and M. Azzaro (Nice, France) ..... 67
High-pressure, high-temperature thermodynamic properties of a coal-derived liquid
S.L. Randzio (Warsaw, Poland) ..... 83
Acidity of dealuminated Y-type zeolites determined by adsorption microcalorimetry
M. Křivánek, N.T. Dung and P. Jírů (Prague, Czechoslovakia) ..... 91
Thermodynamics of dissociation of dicarboxylic acids in water + dioxane mixtures
U.N. Dash (Bhubaneswar, India) and M.K. Mishra (Rourkela, India) ..... 97
Standard thermodynamics of transfer. IV. The silver and silver salt electrodes in acetic acid + water mixtures at 25 °C
U.N. Dash (Bhubaneswar, India) and P.K. Samanta (Rourkela, India) ..... 111
Dissolution enthalpy of NaI in mixtures of ethylene glycol + aliphatic alcohols at 313.15 K
S. Taniewska-Osińska and J. Woźnicka (Łódź, Poland) ..... 119
Enthalpy of transfer of ions from water to water–tetrahydrofuran mixtures
S. Taniewska-Osińska and B. Nowicka (Łódź, Poland) ..... 129
Study on the thermal decomposition of chromium(III) nitrate nonahydrate (CNN)
L. Gubrynowicz and T. Strömich (Gliwice, Poland) ..... 137
Quelques reflexions à propos de la mesure calorimétrique de l'enthalpie de sublimation ou vaporisation
R. Sabbah, I. Antipine, M. Coten and L. Davy (Marseille, France) ..... 153
Détermination de l'enthalpie libre de formation des composés définis $LaBi_2$ et $CeBi_2$
A. Morisson and C. Petot (Villetaneuse, France) ..... 167
A method for the kinetic analysis of nonisothermal decomposition reactions of solids
A. Jerez, E. Ramos, M. Gaitán, M.L. Veiga and C. Pico (Madrid, Spain) ..... 175
The use of thermogravimetry and NMR spectroscopy in the attempted identification of the source of Babylonian building asphalt
F. Al-Sammerrai, D. Al-Sammerrai (Baghdad, Iraq) and J. Al-Rawi (Mosul, Iraq) ..... 181

*(Continued on p. 3 of cover)*

*(Contents continued)*


Thermal characterization of starch-g-acrylonitrile copolymers
N.K. Sandle, O.P.S. Verma and I.K. Varma (Delhi, India) ..... 189

Thermoanalytical investigation of the phase relation in $BaBiO_{3-x}$
Y. Saito, T. Maruyama and A. Yamanaka (Yokohama, Japan) ..... 199

Preparation of $BaPbO_3$ from coprecipitated barium–lead oxalate
A. Yamanaka, T. Maruyama, T. Atake and Y. Saito (Yokohama, Japan) ..... 207

Synthesis of $\gamma$-$Fe_2O_3$ by thermal decomposition of $FeC_4H_2O_4 \cdot \frac{1}{2}H_2O$. Part II
A. Venkataraman, V.A. Mukhedkar, M.M. Rahman, A.K. Nikumbh and A.J. Mukhedkar (Pune, India) ..... 215

Spectroscopic and thermal studies on platinum(II) iodide complexes with primary amines
G. Faraglia, L. Sindellari and S. Sitran (Padova, Italy) ..... 229

Ion association of $Cl^-$ with $Na^+$, $K^+$, $Mg^{2+}$ and $Ca^{2+}$ in aqueous solution at $10 \leqslant T \leqslant 45\,^\circ C$ and $0 \leqslant I \leqslant 1$ mol $l^{-1}$. A literature data analysis
A. De Robertis, S. Sammartano (Messina, Italy), C. Rigano (Catania, Italy) and O. Zerbinati (Torino, Italy) ..... 241

Thermal decomposition of tetramethylammonium di-$\mu$-fluorobis[aquadifluoro-oxovanadate(IV)]
A. Demšar and P. Bukovec (Ljubljana, Yugoslavia) ..... 249

Solid state decomposition studies on metal salicylates. Kinetics of isothermal dehydration of some 5-substituted metal salicylato complexes
P. Kokkonen, L. Palmu and L.H.J. Lajunen (Oulu, Finland) ..... 255

Chlorination reactions of gibbsite and its thermal decomposition products with phosgene
I.S. Pap, I. Bertóti, G. Mink, T. Székely (Budapest, Hungary), T. Hauthal and G. Blumenthal (Berlin, G.D.R.) ..... 269

Kinetic study on the thermal decomposition of cytidine and uridine
Y. Tanaka, N. Takeda and D. Fujita (Tokyo, Japan) ..... 281

TG/MS interface: applications to the determination of moisture in polysaccharides and freeze-dried biological products
J.C. May, A. Del Grosso and R. Wheeler (Bethesda, MD, U.S.A.) ..... 289

Thermal behaviour of transition metal complexes of 4-methoxybenzaldehyde-4-phenyl-3-thiosemicarbazone
K.M.M.S. Prakash, L.D. Prabhakar and D.V. Reddy (Anantapur, India) ..... 297

Linear theory applied to a calorimeter during quasi-isothermal operation
S. Tanaka (Ibaraki, Japan) ..... 303

Sur quelques aspects thermodynamiques et cinétiques de la déshydratation de la zéolithe 13X sous champ microonde
M.B. Chanaa, M. Lallemant, M.H. Simonot-Grange and G. Bertrand (Dijon, France) ..... 317

Ultrasonic velocity and viscosity of binary liquid mixtures
M.R. Islam (Srinagar, India) and S.K. Quadri (Aligarh, India) ..... 335

The measurement of thermal conductivity by differential scanning calorimetry
T. Boddington and P.G. Laye (Leeds, Gt. Britain) ..... 345

Surface tensions of some molten divalent metal carboxylates
M.S. Akanni (Ile-Ife, Nigeria) and H.D. Burrows (Coimbra, Portugal) ..... 351

Prediction of vapor–liquid equilibrium from ternary liquid–liquid equilibrium data by means of local composition equations
I. Nagata and S. Nakamura (Kanazawa, Japan) ..... 359

*Notes*

Affinity of plant auxins IAA, IBA and NAA to metals
S.S. Sawhney and N. Chandra (Dehra Dun, India) ..... 375

Pyrolysis and kinetics of non-isothermal decomposition of La(III)– and Th(IV)–phenoxymethyl penicillin complexes
S.S. Sawhney, D.N. Dangwal and G.S. Chauhan (Dehra Dun, India) ..... 381

Equilibrium analysis of La(III)– and Pr(III)–3-methyl-5-hydroxy-1,4-naphthalenedione systems
S.S. Sawhney and N.K. Arora (Dehra Dun, India) ..... 385

Thermogravimetric investigation of 4-picoline-*N*-oxide (4-picNO) lanthanoid trifluoromethanesulfonate complexes
G. Vicentini, L.B. Zinner (Saõ Paulo, Brazil) and P.O. Dunstan (Campinas, Brazil) ..... 389

*Author Index* ..... 395

*Subject Index* ..... 396